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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

AORTIC ANNULUS SIZING FOR TRANSAPICAL HEART VALVE IMPLANTATION: AN AGREEMENT ANALISYS OF DIFFERENT THREE-DIMENSIONAL TRANSOESOPHAGEAL ECHOCARDIOGRAPHIC MODALITIES AND CARDIAC COMPUTED TOMOGRAPHY SCAN

Poster Contributions
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Background: Aortic annulus dimension is critical in the assessment of patients undergoing trans-apical aortic valve implantation (TAAVI). Computed Tomography (CT scan) is the current reference imaging method for aortic annulus sizing. Utilizing a virtual ring method, CT-scan has shown high accuracy in determining size of the aortic annulus and in particular its cross sectional area (CSA) . Our aim was to test agreement in CSA values obtained by three-dimensional transesophageal echocardiograpy (3DTEE) and CT-Scan in patients undergoing TAAVI.

Methods: Thirty-five patients (81 ± 5 yo, 16 Females) underwent pre-TAAVI 3DTEE. Annulus size by 3DTEE was determined by 3 methods direct annular planimetry, virtual ring CSA (assessed at the level of the most basal attachment points of all three aortic cusps joined by a virtual ring), and computation from two axial diameters. Linear regression, variation coefficients (VC) intra-class correlation coefficients (ICC) and concordance correlation coefficients (CCC) were used to test agreement with MDCT measures obtained at level of virtual basal ring

Results: 3DTEE derived CSA calculated either by virtual ring or computed methods was lower than that measured at CT (p=0.003 and p=0.04 respectively, Table 1) wheras negligible difference was obtained by the direct annulus planimetry method (p=0.31). Planimetry also provided the highest agreement with CT according to R2, ICC or CCC. Procedures were uneventful with no significant aortic regurgitation.

Conclusion: Pre-TAAVI CSA assessment using the direct annulus planimetry method by 3DTEE has optimal agreement with CT-Scan, without the well known risks related to the use of contrast. Further studies are warranted to test usefulness of 3DTEE in predicting short- and long-term outcomes.